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TABLE III.

Showing the Month in each Year, from January, 1843, to December, 1849, in which the greatest and least Quantity of Rain fell in Dublin; the Month whose mean Quantity of Rain is greatest being placed first, and the others in rank of their mean Quantity of Rain.

MONTH.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	Monthly Mean.
October, . . .							<u>3·907</u>	3·060
August, . . .						<u>4·143</u>		2·936
January, . . .			<u>3·495</u>					2·544
April, ...				<u>5·082</u>				2·503
November, . .		<u>3·742</u>						2·300
July, ...					·800			2·116
June, ...							·560	2·005
December, . .	·138			·713	<u>2·968</u>			1·938
September, . .			·705					1·860
May, ...	<u>4·644</u>	·316				·711		1·814
March, ...								1·739
February, . .								1·534

The numbers indicating the greatest monthly fall of rain in each year are underlined.

The monthly mean varies from three inches to an inch and a half.

Professor Allman read a paper on the reproductive system and development of the gemmæ in *Paludicella articulata*.

“ All the fresh-water polyzoa produce true ova, which are formed in a definite organ or ovary. From the existence of a

true ovary and ova we are at once led to expect the co-existence of a male organ. That a testis is present in all the species of fresh-water polyzoa there can, I think, now be little doubt. In most of the genera I have met with an organ which I have little hesitation in viewing as a testis, though, with the exception of *Paludicella*, the demonstration of such an organ is somewhat obscure. In this genus, however, I have had the most satisfactory demonstration of both testicle and ovary, the one loaded with spermatozoa, the other with ova.

“The ovary and testis in *Paludicella articulata* are both found in the same cell. The former is an irregularly shaped body adherent to the inner surface of the internal tunic, towards the upper part of the cell. About the end of June, when I discovered this organ, it was loaded with ova of various sizes, some so small as to require for their detection a high power of the microscope, while others were almost visible to the naked eye, and seemed ready to burst the restraining membrane of the ovary, and escape into the cavity of the cell. Attached by one extremity to the external surface of the stomach, near the commencement of the intestine, and by the other apparently in connexion with the ovary, is a cylindrical flexible cord which obeys all the motions of the stomach. Of the nature of this appendage, which thus brings the ovary into connexion with the stomach, I have been unable to arrive at any satisfactory conclusion; it can scarcely be an oviduct communicating with the cavity of the stomach, and thus affording through the latter organ a way of egress to the ova; for even though it be tubular, a condition not by any means apparent, it is evidently too narrow to receive the mature ova, even supposing it to undergo as much dilatation as would seem possible with such an organ.

“The *testicle* is an irregularly lobed mass, attached, like the ovary, to the inner surface of the lining membrane of the

cell ; it occupies a position near the bottom of the cell, and is thus separated by a wide interval from the ovary. Like the latter organ, it is connected with the stomach by a cylindrical cord precisely similar to that already described as belonging to the ovary. This cord, which is connected with the testicle by one extremity, is attached by the other to the fundus of the stomach, and its office is just as obscure as that of the corresponding cord connected with the ovary. The testicle was observed at the same time as the ovary, and was then loaded with spermatozoa, which projected from its surface in the form of a dense villosity, each minute filament of which exhibited a perpetually undulating motion. Many of the spermatozoa had escaped from the testicle and were carried about by the currents of the perigastric fluid, and thus brought in contact with the ovary, round which several were observed clustering. The spermatozoa in *Paludicella* are simple vibrioid bodies without any terminal enlargement, and exhibit a constant sinuous or undulatory motion.

“ The ova, on arriving at a certain stage of development, and while still in the ovary, present distinctly the germinal vesicle and germinal speck ; these, however, soon disappear. When the ovum escapes from the ovary it is a lenticular body, surrounded by an annulus, in which a somewhat obscurely cellular structure is apparent. A coloured and very eccentric spot may be observed at this stage in the contents of the ovum. I have not been fortunate enough to observe the ova of *Paludicella* more than once, and have thus had no opportunities of making further observations on these bodies.

“ I have never witnessed in *Paludicella* the occurrence of free locomotive embryos, such as may be seen in other polyzoa, though it is by no means improbable that further research may detect them ; I have, however, succeeded in following the development of the gemmæ from a very early stage to its completion. The gemma, in the earliest condition in which I

have been able to observe it, appears as a minute tubercle projecting from the external walls of the cell, and filled with a granular parenchyma. We next find it hollowed out into a cavity which communicates with the interior of the parent cell. The tubercle, with its cavity, increases in size, and the gemma is now found to consist of an external envelope continuous with the external tunic of the parent cell, and of a thick fleshy lining continuous with the internal tunic. This lining has numerous, large, round, nucleated cells distributed through its substance, and internally it presents a rough, uneven surface. The two tunics of the gemma are to become the external and internal tunics of the future cell.

“ By this time the gemma has become considerably elongated, and has acquired a clavate form, and its cavity begins to be cut off from that of the parent cell, by the formation of a septum. We next perceive that a rounded mass has formed in the substance of the lining tunic, near the wide extremity of the gemma, and projects into the interior of the latter. In this mass we soon perceive a cavity surrounded by a slightly waved oval ring, which is afterwards to become the tentacular crown of the adult. The ring is at first quite simple, resembling a mere fold of thickish membrane, but in a short time it presents all round a series of minute tubercles, the rudiments of the future tentacula. Delicate fibres may now be distinctly seen passing from the little mass, in which these appearances have been presenting themselves, to the walls of the cavity of the gemma; these fibres are the rudimental retractors of the alimentary canal. Circular fibres may also be now seen in the lining membrane of the gemma; these are chiefly collected near its proximal end, and are to become the parietal muscles of the adult. The tentacular sheath also may now be perceived extending from the base of the rudimental tentacula to the walls of the cavity in which the young polypide is suspended, and fibres which are to become the superior parieto-

vaginal muscles may be observed in connexion with it. The rudimental polypide has now become somewhat enlarged below the tentacular ring, and here presents in its interior a cavity. This cavity is at first simple and continuous, but as the inferior extremity of the polypide continues to elongate, we soon find it divided into three distinct regions, which are the first indications of œsophagus, stomach, and intestine. By the elongation of the tentacula, the tentacular crown has now acquired nearly its full development. Up to this period the young polypide has been entirely shut off from all communication with the external water, and its nutrition must have been effected through the general nutrition of the colony; now, however, an opening occurs in the gemma, just over the tentacular crown, and the last stage of development is entered on. The tentacular crown rapidly acquires its complete form, the inferior extremity of the alimentary canal becomes elongated into the great *cul de sac* of the stomach, the muscles are by this time all formed, and the polypide is capable of exertion and retraction. It is now no longer dependent for its growth on the general nutrition of the colony, but has become an independent being, obtaining its food from without, and submitting it to the action of its own digestive system."

The following Resolution of Council was read :

"That the Report of the Committee of Antiquities, which was presented to the Council on the 1st of July, be read at the next meeting of the Academy, together with the Resolution of October 7th, referring thereto, viz. :

"That the Report of the Committee of Antiquities, received on July 7, be adopted."

It was, however, resolved that the Academy do adjourn.